UC-8430 Series

RISC-based industrial embedded computer with 8 serial ports, 4 DIs, 4 DOs, 3 LANs, CompactFlash, dual VGA, audio, 6 USB

-40°C 75°C

- Intel XScale IXP435 533 MHz processor
- 256 MB DDR2 SDRAM
- 32 MB NAND Flash for data storage
- 32 MB NOR Flash to store OS
- Dual VGA displays
- 3 10/100 Mbps Ethernet Ports
- 8 RS-232/422/485 serial ports (non-standard baudrates supported)
- 6 USB 2.0 ports for high speed access to peripherals
- 4 digital input channels and 4 digital output channels
- CompactFlash socket for storage expansion
- Ready-to-run Embedded Linux or Windows CE 6.0

Microsoft® Windows® Embedded

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Overview

The UC-8430 embedded computer comes with 8 RS-232/422/485 serial ports, 3 Ethernet ports, dual displays, 4 digital input channels, 4 digital output channels, a CompactFlash socket, and 6 USB 2.0 hosts.

The computer uses the Intel XScale IXP435 533 MHz RISC CPU. This powerful computing engine supports several useful communication functions, but will not generate too much heat. The built-in 32 MB NOR Flash ROM and 256 MB SDRAM give you enough memory to run your application software directly on the UC-8430, and the 32 MB NAND Flash can be used to provide additional data storage.

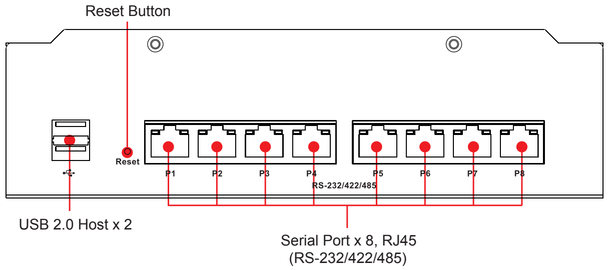
Moreover, the 256 KB SRAM offers a better data retention mechanism for avoiding data loss. The UC-8430 computer comes with 8 RS-232/422/485 serial ports, digital I/O, and has 3 LAN ports, making it ideal as a communication platform for industrial applications that require network redundancy. As an added convenience, the UC-8430 comes with dual VGA outputs; this is particularly helpful when establishing an industrial application at a remote field site.

The UC-8430 comes with the Linux 2.6 or Windows CE 6.0 platform pre-installed to provide an open software operating system for software program development. Software written for a desktop PC can be easily ported to the UC-8430 platform by using a common compiler, without needing to modify the code. This makes the UC-8430 an optimal solution for use with industrial applications, but with minimal cost and effort.

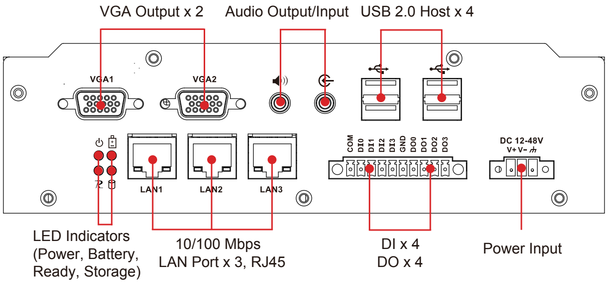
A wide temperature model of the UC-8430, designed to operate reliably in temperatures ranging from -40 to 75°C, is also available.

Appearance

Front View

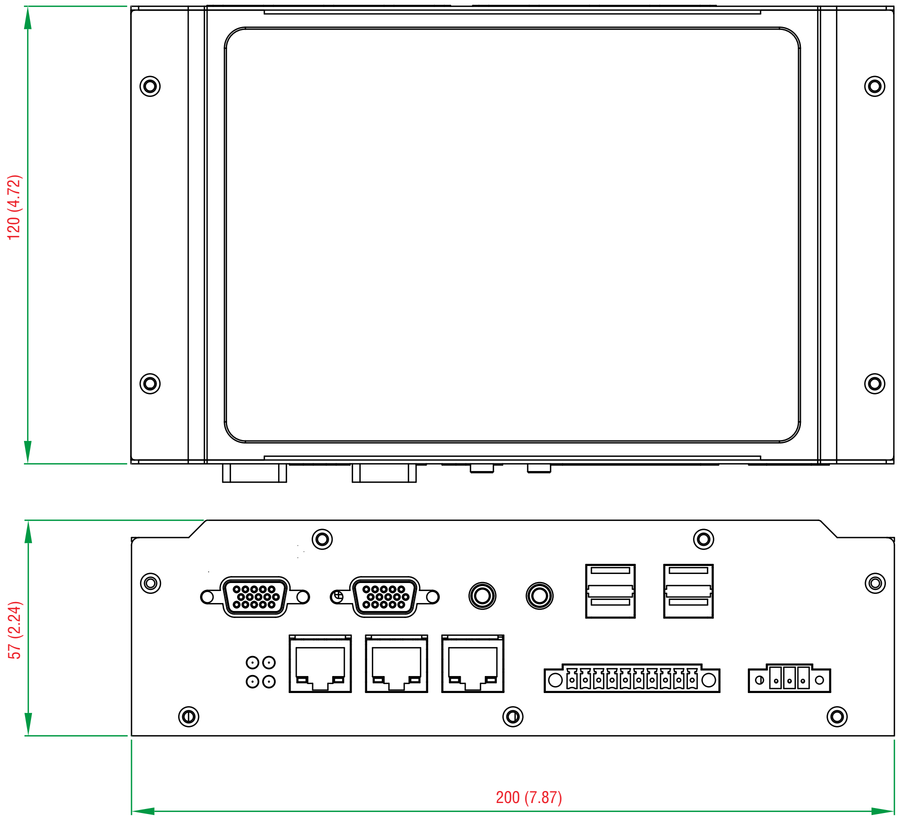


Rear View



Dimensions

Unit: mm (inch)



Hardware Specifications

Computer
CPU: Intel XScale IXP435, 533 MHz
OS (pre-installed): Linux, Window CE 6.0
DRAM: 256 MB DDR2 SDRAM onboard (supports DDR2 up to 512 MB)
SRAM: 256 KB, battery backup
Flash:
32 MB NOR Flash onboard to store OS
32 MB NAND Flash onboard to store data
USB: USB 2.0 host x 6

Storage
Storage Expansion: CompactFlash socket
Expansion Bus: PCI/104

Other Peripherals
Audio: SM502 chip with line-in/out interface

Display
Graphics Controller: SM502 chip
Display Interface: 15-pin D-Sub connector x 2
Resolution: CRT display mode with pixel resolution up to 1024 x 768

Ethernet Interface
LAN: 3 auto-sensing 10/100 Mbps ports (RJ45)
Magnetic Isolation Protection: 1.5 KV built-in

Serial Interface
Serial Standards: 8 RS-232/422/485 ports, software-selectable (8-pin RJ45)
Console Port: RS-232 (TxD, RxD, GND), 4-pin pin header output (115200, n, 8, 1)

Serial Communication Parameters
Data Bits: 5, 6, 7, 8
Stop Bits: 1, 1.5, 2
Parity: None, Even, Odd, Space, Mark
Flow Control: RTS/CTS, XON/XOFF, ADDC® (automatic data direction control) for RS-485
Baudrate: 50 bps to 921.6 Kbps (supports non-standard baudrates; see user's manual for details)

Serial Signals
RS-232: TxD, RxD, DTR, DSR, RTS, CTS, DCD, GND
RS-422: TxD+, TxD-, RxD+, RxD-, GND
RS-485-4w: TxD+, TxD-, RxD+, RxD-, GND
RS-485-2w: Data+, Data-, GND

Digital Input
Input Channels: 4, source type
Input Voltage: 0 to 30 VDC
Digital Input Levels for Dry Contacts:
- Logic level 0: Close to GND
- Logic level 1: Open

Digital Input Levels for Wet Contacts:
- Logic level 0: +3 V max.
- Logic level 1: +10 V to +30 V (COM to DI)

Connector Type: 10-pin screw terminal block (4 points, COM, GND)
Isolation: 3 KV optical isolation

Digital Output
Output Channels: 4, sink type
Output Current: Max. 200 mA per channel
On-state Voltage: 24 VDC nominal, open collector to 30 V
Connector Type: 10-pin screw terminal block (4 points, GND)

LEDs
System: Power, Ready, Storage, Battery for SRAM
LAN: 10M/Link x 3, 100M/Link x 3 (on connector)

Serial: TxD x 8, RxD x 8
Reset Button: Supports "Reset to Factory Default"

Physical Characteristics
Housing: SECC sheet metal (1 mm)
Weight: 1 kg
Dimensions: 200 x 57 x 120 mm (7.87 x 2.24 x 4.72 in)
Mounting: DIN-Rail, wall

Environmental Limits
Operating Temperature:
Standard Models: -10 to 60°C (14 to 140°F)
Wide Temp. Models: -40 to 75°C (-40 to 167°F)
Storage Temperature:
Standard Models: -20 to 75°C (-4 to 167°F)
Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)
Anti-vibration: 2 g rms @ IEC-68-2-34, random wave, 5-500 Hz, 1 hr per axis
Anti-shock: 20 g @ IEC-68-2-27, half sine wave, 30 ms

Power Requirements
Input Voltage: 12 to 48 VDC (3-pin terminal block)
Power Consumption: 14 W
- 270 mA @ 48 VDC
- 533 mA @ 24 VDC
- 1120 mA @ 12 VDC

Standards and Certifications
Safety: UL 60950-1, EN 60950-1, CCC (GB9254, GB17625.1)
EMC: EN55022 Class B, EN 55024-4-2, EN 55024-4-3, EN 55024-4-4, FCC Part 15 Subpart B Class B

Reliability
Alert Tools: Built-in buzzer and RTC (real-time clock)
Automatic Reboot Trigger: Built-in WDT (watchdog timer)
MTBF (mean time between failures): 217,675 hrs

Warranty
Warranty Period: 5 years
Details: See www.moxa.com/warranty
Note: The Hardware Specifications apply to the embedded computer unit itself, but not to accessories. In particular, the wide temperature specification does not apply to accessories such as the power adaptor and cables.

Software Specifications

Linux
OS: Linux 2.6.23
File System: JFFS2, NFS, Ext2, Ext3
Internet Protocol Suite: TCP, UDP, IPv4, SNMPv1, ICMP, ARP, HTTP, CHAP, PAP, DHCP, NTP, NFS, SMTP, Telnet, FTP, TFTP, PPP, PPPoE
Internet Security: OpenVPN, iptables firewall
Web Server (Apache): Allows you to create and manage web sites; supports PHP and XML
Terminal Server (SSH): Provides secure encrypted communications between two un-trusted hosts over an insecure network
Dial-up Networking: PPP Daemon for Linux that allows Unix machines to connect to the Internet through dialup lines, using the PPP protocol, as a PPP server or client. Works with 'chat', 'dip', and 'diald', among (many) others. Supports IP, TCP, UDP, and (for Linux) IPX (Novell).
Watchdog: Features a hardware function to trigger system reset in a user specified time interval (Moxa API provided)
Application Development Software:
- Moxa API Library (Watchdog timer, Moxa serial I/O control, Moxa DI/DO API)
- GNU C/C++ cross-compiler
- GNU C library
- GDB source-level debugging server

QT Embedded: Supports GUI development
Software Protection: Encryption tool for user executable files (based on patented Moxa technology)

Windows Embedded CE 6.0
OS: Windows Embedded CE 6.0 R3
File System: FAT
Internet Protocol Suite: TCP, UDP, IPv4, SNMPv2, ICMP, IGMP, ARP, HTTP, CHAP, PAP, SSL, DHCP, SNTP, SMTP, Telnet, FTP, PPP
Web Server (WinCE IIS): Supports ASP, ISAPI Secure Socket Layer (SSL 2/3) and Transport Layer Security (TLS/SSL 3.1) public key-based protocols, and Web Administration ISAPI Extensions
Dial-up Networking: Supports RAS client API and PPP, Extensible Authentication Protocol (EAP), and RAS scripting
Watchdog: Features a hardware function to trigger system reset in a user specified time interval. (Moxa API provided)
Application Development Software:
- Moxa WinCE 6.0 SDK
- Moxa API Library
- C Libraries and Run-times
- Component Services (COM and DCOM)
- Microsoft® .NET Compact Framework 3.5
- XML, including DOM, XQL, XPATH, XSLT, SAX, SAX2
- SOAP Toolkit Client
- Winsock 2.2

Ordering Information

Available Models
UC-8430-LX: RISC-based industrial embedded computer with 8 serial ports, 4 DIs, 4 DOs, 3 LANs, CompactFlash, Dual VGA, Audio, 6 USB, Linux OS, -10 to 60°C operating temperature
UC-8430-CE: RISC-based industrial embedded computer with 8 serial ports, 4 DIs, 4 DOs, 3 LANs, CompactFlash, Dual VGA, Audio, 6 USB, Windows CE 6.0 OS, -10 to 60°C operating temperature
UC-8430-T-LX: RISC-based industrial embedded computer with 8 serial ports, 4 DIs, 4 DOs, 3 LANs, CompactFlash, Dual VGA, Audio, 6 USB, Linux OS, -40 to 75°C operating temperature
UC-8430-T-CE: RISC-based industrial embedded computer with 8 serial ports, 4 DIs, 4 DOs, 3 LANs, CompactFlash, Dual VGA, Audio, 6 USB, Windows CE 6.0 OS, -40 to 75°C operating temperature

Package Checklist
- UC-8430 embedded computer
- Wall mounting kit
- DIN-Rail mounting kit
- Ethernet cable: RJ45 to RJ45 cross-over cable, 100 cm
- CBL-4PINDB9F-100: 4-pin pin header to DB9 female console port cable, 100 cm
- Universal power adaptor (including power jack converter)
- Documentation and software CD or DVD
- Quick installation guide (printed)
- Warranty card

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